

CLAIMS

1. In a radio communication system having a base station and a plurality of mobile stations, a method for transmitting traffic information from the base station to a mobile station, comprising the steps of:
- (A) intentionally transmitting traffic information from the base station with a first symbol energy amount that is insufficient for correct demodulation of the traffic information by a mobile station; and
- (B) after step (A), retransmitting the traffic information initially transmitted with the first symbol energy amount from the base station to the mobile station, wherein the traffic information is retransmitted in step (B) with a further symbol energy amount that is also insufficient by itself for correct demodulation of the traffic information by the mobile station.
2. The method of Claim 1, further comprising the step of:
- (C) repeating step (B) until a sum of the symbol energy amounts used to transmit the traffic information initially transmitted with insufficient symbol energy for correct demodulation is great enough to permit correct demodulation by the mobile station.
3. The method of Claim 1, wherein the further symbol energy amount used for re-transmitting the traffic information in step (B) is determined at the base station using fast forward power control.
4. The method of Claim 1, further comprising the steps of:
- (D) determining, at the mobile station, a received energy value corresponding to the traffic information transmitted from the base station in step (A); and
- (E) transmitting the received energy value from the mobile station to the base station;

(F) wherein the further symbol energy amount used for re-transmitting the traffic information in step (B) is determined at the base station in accordance with the received energy value transmitted from the mobile station.

5. The method of Claim 4, wherein the received energy value is transmitted from the mobile station to the base station using an acknowledgement protocol.

6. The method of Claim 5, wherein acknowledgement protocol is transmitted between the base station and the mobile station using forward and reverse control channels.

7. The method of Claim 6, wherein the traffic information is transmitted in steps (A) and (B) on a supplemental channel, and the forward and reverse control channels have a lower error rate than the supplemental channel.

8. The method of Claim 4, wherein the received energy value is transmitted from the mobile station to the base station using a negative acknowledgement protocol.

9. The method of Claim 8, wherein acknowledgement protocol is transmitted between the base station and the mobile station using forward and reverse control channels.

10. The method of Claim 9, wherein the traffic information is transmitted in steps (A) and (B) on a supplemental channel, and the forward and reverse control channels have a lower error rate than the supplemental channel.

11. The method of Claim 2, further comprising the step of:
(D) summing the traffic information transmitted with the first symbol energy amount in step (A) with the traffic information transmitted with the

4 further symbol energy amount in step (B) by combining received energy
associated with the traffic information transmitted with the first symbol energy
6 amount in step (A) with received energy associated with the traffic information
transmitted with the further symbol energy amount in step (B) in a buffer at the
8 mobile station; and

(E) demodulating the traffic information at the mobile station in
10 accordance with the result of step (D).

12. In a mobile radio telephone system having a base station
2 controller that services a plurality of base station transceivers that transmit
traffic information to a plurality of mobile stations, an apparatus for
4 transmitting traffic information from a base station transceiver to a mobile
station, comprising:

6 (A) a power allocation unit at the base station controller that selects a
first symbol energy amount for transmitting traffic information from the base
8 station transceiver to the mobile station, wherein the first symbol energy
amount is insufficient for correct demodulation of the traffic information by the
10 mobile station, and the power allocation unit selects a further symbol energy
amount for re-transmitting the traffic information from the base station
12 transceiver to the mobile station, wherein the further symbol energy amount is
also insufficient by itself for correct demodulation of the traffic information by
14 the mobile station;

(B) a base station transmitter that initially transmits the traffic
16 information from the base station transceiver to the mobile station at the first
symbol energy amount and subsequently transmits the traffic information from
18 the base station transceiver to the mobile station at the further symbol energy
amount.

13. In a mobile radio telephone system having a base station that
2 transmits traffic information to a plurality of mobile stations, an apparatus for
transmitting traffic information from the base station to the mobile station,
4 comprising:

- 6 (A) a power allocation unit at the base station that selects a first symbol
energy amount for transmitting traffic information from the base station to the
mobile station, wherein the first symbol energy amount is insufficient for
8 correct demodulation of the traffic information by the mobile station, and the
power allocation unit selects a further symbol energy amount for re-
10 transmitting the traffic information from the base station to the mobile station,
wherein the further symbol energy amount is also insufficient by itself for
12 correct demodulation of the traffic information by the mobile station; and
(B) a base station transmitter that initially transmits the traffic
14 information from the base station to the mobile station at the first symbol
energy amount and subsequently transmits the traffic information from the
16 base station to the mobile station at the further symbol energy amount.

14. In a mobile radio telephone system having a base station and a
2 plurality of mobile stations, an apparatus for transmitting traffic information
from the base station to a mobile station, comprising:

- 4 (A) means for intentionally transmitting traffic information from the
base station with a first symbol energy amount that is insufficient for correct
6 demodulation of the traffic information by a mobile station; and

- (B) means for re-transmitting the traffic information with a further
8 symbol energy amount that is also insufficient by itself for correct
demodulation of the traffic information by the mobile station.